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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/554,072

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EXAMINER

BALAOING, ARIEL A

ART UNIT

PAPER NUMBER

2617

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/554,072	<b>Applicant(s)</b> BAMBERGER ET AL.	
	<b>Examiner</b> ARIEL BALAOING	<b>Art Unit</b> 2617	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 21-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 37 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 37 provides for the use of a configuration for determining a selected position of a mobile communication device, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 37 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper

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definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 21-27, 37, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over BAHL et al (US 6,385,454 B1) in view of HERZOG et al (US 6,892,163).

Regarding claim 21, BAHL discloses a method for determining a selected position of a mobile communications device in a communications network having at least one base station (abstract), comprising: determining a possible location area of the mobile communications device by applying a non-linear Bayesian filter [**extended kalman filter (EKF)**] technique in which a probability density is approximated by Gaussian mixture densities (col. 4, line 7-30; col. 5, line 25-34; col. 9, line 23-41; col. 14, line 43-58; prediction based mobility pattern using correlation area. Furthermore extended kalman filters are used to provide non-linear Bayesian filtering); and determining a selected position of the mobile communications device within the possible location area using a first communications signal of a first base station associated with the possible location area and using a non-linear communications model with a deterministic component and a stochastic component, the deterministic component describing a dependency between communications signals of the first base station and positions of the mobile communications device and the stochastic component describing an uncertainty of the deterministic component (col. 3, line 40-60; col. 14, line 43-58; col. 21, line 19-35; stochastic and deterministic components used for dynamic and adaptive probability determinations). However, BAHL does not expressly disclose

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filtering in which a non-Gaussian probability density is approximated. In a similar field of endeavor, HERZOG discloses filtering in which a non-Gaussian probability density is approximated (col. 2, line 20-24; col. 27, line 39-45). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify BAHL to include the teachings of HERZOG, since HERZOG states that filtering of non-Gaussian data would provide improved fault detection in a system.

Regarding claim 22, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. BAHL further discloses wherein said at least one base station includes a second base station, set up for a second communication with the mobile communications device by a second communications signal, and wherein said determining of the selected position uses at least one of the first communications signal and the second communications signal together with the non-linear communications model (col. 4, line 7-30; col. 5, line 25-34; col. 9, line 23-41).

Regarding claim 23, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. BAHL further discloses wherein said determining of the possible location area includes determining at least one distance-dependent parameter depending on a distance between the mobile communications device and at least one of the first and second base stations using at least one of the first and second communications signals (col. 14, line 43-63).

Regarding claim 24, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of BAHL and HERZOG further discloses wherein the uncertainty of the deterministic component includes at least one

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of uncertainty of the communications signals caused by measurement noise and uncertainty of the non-linear communications model (BAHL- col. 14, line 43-63; HERZOG - col. 27, line 39-45).

Regarding claim 25, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. BAHL further discloses wherein the first communications signal is at least one of time-dependent and measured for a point in time  $k$  (col. 8, line 57-col. 9, line 5; col. 14, line 43-63).

Regarding claim 26, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. BAHL further discloses wherein the non-linear Bayesian filter technique is applied iteratively (col. 8, line 57-col. 9, line 5; col. 14, line 43-63).

Regarding claim 27, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. BAHL further discloses wherein one of a Gaussian mixed filter algorithm and an extended Kalman filter is used in the non-linear Bayesian filter technique (col. 4, line 7-30; col. 14, line 43-63).

Regarding claim 37, BAHL discloses a configuration for determining a selected position of a mobile communications device in a communications network having at least one base station (abstract; figure 1), comprising: a position-determining unit determining a possible location area of the mobile communications device by applying a non-linear Bayesian filter technique in which a probability density is approximated by Gaussian mixture densities and determining a selected position of the mobile communications device within the possible location area using a first communications

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signal of a first base station associated with the possible location area and using a non-linear communications model with a deterministic component and a stochastic component, the deterministic component describing a dependency between communications signals of the first base station and positions of the mobile communications device and the stochastic component describing an uncertainty of the deterministic component (col. 4, line 7-30; col. 5, line 25-34; col. 9, line 23-41; col. 14, line 43-58; prediction based mobility pattern using correlation area. Furthermore extended kalman filters are used to provide non-linear Bayesial filtering).

Regarding claim 38, BAML discloses at least one computer readable medium storing instructions that when executed control a computer to perform a method for determining a selected position of a mobile communications device in a communications network having at least one base station (abstract, figure 1), comprising: determining a possible location area of the mobile communications device by applying a non-linear Bayesian filter technique in which a probability density is approximated by Gaussian mixture densities (col. 4, line 7-30; col. 5, line 25-34; col. 9, line 23-41; col. 14, line 43-58; prediction based mobility pattern using correlation area. Furthermore extended kalman filters are used to provide non-linear Bayesial filtering); and determining a selected position of the mobile communications device within the possible location area using a first communications signal of a first base station associated with the possible location area and using a non-linear communications model with a deterministic component and a stochastic component, the deterministic component describing a dependency between communications signals of the first base



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station and positions of the mobile communications device and the stochastic component describing an uncertainty of the deterministic component (col. 3, line 40-60; col. 14, line 43-58; col. 21, line 19-35; stochastic and deterministic components used for dynamic and adaptive probability determinations). However, BAHL does not expressly disclose filtering in which a non-Gaussian probability density is approximated. In a similar field of endeavor, HERZOG discloses filtering in which a non-Gaussian probability density is approximated (col. 2, line 20-24; col. 27, line 39-45). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify BAHL to include the teachings of HERZOG, since HERZOG states that filtering of non-Gaussian data would provide improved fault detection in a system.

9. Claims 28-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over BAHL et al (US 6,385,454 B1) in view of HERZOG et al (US 6,892,163) as applied to claim 27 above, and further in view of the applicant's description of the prior art.

Regarding claim 28, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of BAHL and HERZOG does not disclose wherein the Gaussian mixed filter algorithm is a Prior Density Splitting Mixture Estimator. The applicant's disclosure of the prior discloses wherein a Gaussian mixed filter algorithm is a Prior Density Splitting Mixture Estimator (paragraph 23-38). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of BAHL and HERZOG, since the applicant states that using a prior density splitting mixture estimator is known in the art to reduce linearization errors by splitting a-priori densities.

Regarding claim 29, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. BAHF further discloses wherein said determining of the selected position further uses a user model describing a movement of the mobile communications device (col. 8, line 17-39; col. 13, line 18-31).

Regarding claim 30, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. BAHF further discloses wherein in the user model, the movement of the mobile communications device is limited for a time step (col. 13, line 18-31).

Regarding claim 31, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. BAHF further discloses wherein said determining of the selected position determines an estimated position for the selected position using the user model (col. 8, line 17-39; col. 13, line 18-31).

Regarding claim 32, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. BAHF further discloses wherein the estimated position is determined by applying the non-linear Bayesian filter technique (col. 4, line 7-30; col. 5, line 25-34; col. 9, line 23-41; col. 14, line 43-58).

Regarding claim 33, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. BAHF further discloses wherein the estimated position is used as a starting value for said determining of the possible location area of the selected position through the application of the non-linear Bayesian filter technique (col. 9, line 23-41; col. 14, line 43-58).

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Regarding claim 34, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. BAHL further discloses wherein the communications network is a WLAN, GSM or DECT network (col. 7, line 40-55).

Regarding claim 35, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. BAHL further discloses wherein one of a focal point and an expected value of the possible location area is used as the selected position of the mobile communications device (col. 4, line 7-30; col. 5, line 25-34; col. 9, line 23-41).

Regarding claim 36, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. BAHL further discloses wherein the mobile communications device is a mobile telephone in a digital cellular mobile radio network and the first base station is a call-controlling base station in the digital cellular mobile radio network, and wherein said determining of the selected position enables localization of the mobile telephone (col. 7, line 40-55).

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

CHANG et al (US 6889053) – Likelihood-based geolocation prediction algorithms

SINGH (US 2005/0105795) – Classification in likelihood spaces

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARIEL BALAOING whose telephone number is

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(571)272-7317. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, V. Paul Harper can be reached on (571) 272-7605. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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